CLAIMS

1. A method of manufacturing an integrated magneto-optical element for use in a magneto-optical write and/or read head, comprising forming a thin-film in-plane magnetic coil (106) in or on a transparent substrate (109), and then forming on said substrate (109) an objective lens (114).

2. A method according to claim 1, wherein said objective lens (114) has a relatively very high numerical aperture (NA).

3. A method according to claim 2, wherein said objective lens (114) has a NA> 0.85.

4. A method according to claim 3, wherein said objective lens (114) has a NA> 0.9.

5. A method according to any one of the preceding claims, wherein the thin-film in-plane magnetic oil (106) is formed by deposition or galvanic growth of a layer of conductive material onto the substrate (109).

6. A method according to any one of the preceding claims, wherein two or more layers of conductive material are provided on a semiconductor substrate, which is subsequently adhered to a transparent substrate (109).

7. A method according to any one of claims 1 to 6, wherein the magnetic coil (106) comprises at least two layers of conductive material separated by an insulating material.

8. A method according to any one of the preceding claims, wherein the objective lens (114) is made by one of glass-photopolymer replication technique, glass moulding or plastic injection moulding.

9. A method according to any one of the preceding claims wherein an array of objective lenses (114) is formed or mounted on a substrate (109) having a plurality of respective magnetic coils (106) provided thereon, and the substrate (109) is then cut into a plurality of lens-coil combinations.

10. A method according to any one of claims 1 to 8, wherein a single lens (114) is mounted or formed on a substrate (109) having a single magnetic coil (106).

11. An integrated magneto-optical element comprising a thin-film in-plane magnetic coil in or on a transparent substrate (109) and an objective lens (114), the element being manufactured according to any one of claims 1 to 10.

12. A method of manufacturing a magneto-optical write and/or read head, the method including the step of manufacturing an integrated magneto-optical element according to the method of any one of claims 1 to 10.

13. A magneto-optical read and/or write head manufactured according to the method of claim 12.

14. A magneto-optical write and/or read head according to claim 13, wherein a further lens (116) is provided above the lens-coil combination.